

LAKEVIEW

**water pollution
control plant**

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ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET, TORONTO 5

OFFICE OF THE GENERAL MANAGER

Members of the Lakeview Local Advisory Committee,
The Township of Toronto and the Municipality of
Metropolitan Toronto.

Gentlemen:

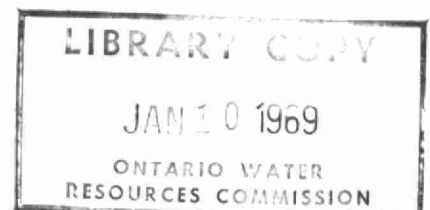
We are happy to present you with the 1967 Operating Summary for the
Lakeview Water Pollution Control Plant, OWRC Project No. 2-0043-59.

Your co-operation with our staff throughout the year has been appreciated.
Only with such co-operation can the war against water pollution be waged
effectively.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", is written over the typed name.

D. S. Caverly,
General Manager.



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ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET

TORONTO 5

TELEPHONE 365.

J. A. VANCE, LL.D.
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J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am pleased to submit to you the 1967 Operating Summary for the Lakeview Water Pollution Control Plant, OWRC Project No. 2-0043-59.

The summary reviews progress during the year, outlines operating problems encountered and summarizes in graphs, charts and tables all significant flow and cost data.

Yours very truly,

A handwritten signature in dark ink, reading "D. A. McTavish". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary has been prepared in order to acquaint readers with the management of the project during 1967. The efficiency of the plant's operation is reflected in a general review. Significant financial details are recorded, and technical performance is illustrated by graphs and charts.

The summary should answer two salient questions. Are the project's facilities adequate at this time? And can the project meet future requirements?

The Regional Operations Engineer is primarily responsible for the preparation of the report, and will be pleased to answer any questions regarding it.

Most of the material for the graphs and charts was compiled by the statistics section of the Division of Plant Operations, with the final versions of the graphs being drawn by the draughting section of the Division of Sanitary Engineering. Cost data were provided by the Division of Finance.

It will be evident from the report that all of these groups co-operated with substantial success.

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LAKEVIEW
water pollution control plant

operated for

THE TOWNSHIP OF TORONTO

and

THE MUNICIPALITY OF METROPOLITAN TORONTO

by

THE ONTARIO WATER RESOURCES COMMISSION

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DIVISION OF PLANT OPERATIONS

DIRECTOR: D. A. McTavish

Assistant Director: C. W. Perry
Regional Supervisor: A. C. Beattie
Operations Engineer: A. Clark

801 Bay Street Toronto 5

'67 REVIEW

The flow of raw sewage reaching the plant increased steadily throughout 1967 reaching an average of 11.5 mgd in December 1967. Effluent quality in the first half of the year was poor but began to improve as portions of the enlarged facilities were put into service.

The plant effluent was good, although it did not meet OWRC objectives continuously and was affected by start-up problems. Plant capacity was doubled during the year. However, flows increased to such an extent that the enlarged plant is now slightly overloaded.

PROJECT STAFF

In 1967 plant staff increased to meet the requirements of the enlarged plant. Staff at the year end consisted of superintendent, chief operator, 4 operators and 3 labourers. Also under the superintendent are a chief mechanic, 2 mechanics, 1 electrician and one helper.

These men also operate the satellite sewage pumping stations in Port Credit and the Township of Toronto.

MAINTENANCE

Numerous problems were encountered with the start up of new equipment. Routine maintenance suffered slightly because of this.

PROJECT COSTS

NET CAPITAL COST (Final)

Metro Toronto	\$1,401,180.66	
Toronto Twp.	<u>482,574.34</u>	\$1,883,755.00

Deduct portion financed by CMHC (Final--Metro only)	<u>185,877.58</u>	
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LONG TERM DEBT TO OWRC		<u>\$1,697,877.42</u>
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Debt Retirement Balance at Credit (Sinking Fund) December 31, 1966

Metro Toronto	\$ 179,622.06	
Toronto Twp.	<u>71,028.19</u>	
		<u>\$ 250,650.25</u>

The total cost to the municipalities during 1967 was as follows:

Net Operating

Metro Toronto	\$ 119,964.68	
Toronto Twp.	<u>67,902.83</u>	
		\$ 187,867.51

Debt Retirement

Metro Toronto	\$ 24,525.00	
Toronto Twp.	<u>9,738.00</u>	
		\$ 34,263.00

Reserve

Metro Toronto	\$ 7,285.18	
Toronto Twp.	<u>2,499.79</u>	
		\$ 9,784.97

Interest Charged

Metro Toronto	\$ 68,535.36	
	<u>27,213.83</u>	
		\$ 95,749.19

TOTAL		<u>\$ 327,664.67</u>
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RESERVE ACCOUNT

Balance at January 1, 1967

Metro Toronto	\$ 47,925.64	
Toronto Twp.	<u>15,861.10</u>	
		\$ 63,786.74

Deposited by Municipalities

Metro Toronto	\$ 7,285.18	
Toronto Twp.	<u>2,499.79</u>	
		\$ 9,784.97

Interest Earned

Metro Toronto	\$ 2,875.95	
Toronto Twp.	<u>953.54</u>	
		\$ <u>3,829.49</u>

Less Expenditures

Metro Toronto	-	
Toronto Twp.	<u>-</u>	

Balance at December 31, 1967		\$ <u><u>77,401.20</u></u>
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MONTHLY OPERATING COSTS

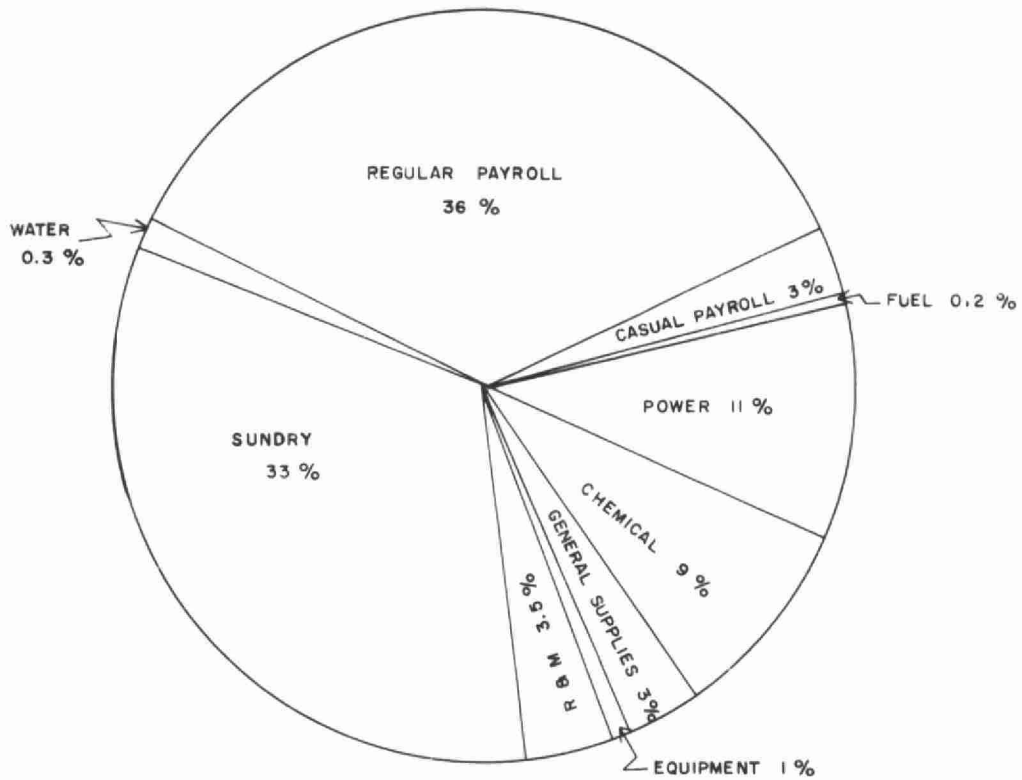
MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	4,914.41	4,421.58	-	-	-	-	117.86	24.15	326.75	59.70	44.37
FEB	13,101.62	3,974.55	329.10	15.37	1525.88	1411.12	254.76	351.80	162.64	591.24	63.66
MARCH	15,901.00	7,511.54	466.60	30.15	1461.99	866.43	397.79	59.25	308.14	7634.71	44.40
APRIL	13,271.65	4,856.14	645.82	24.46	1711.67	1727.16	752.21	-	162.81	3484.13	17.29
MAY	13,543.87	5,600.85	718.78	9.33	59.95	3243.95	246.50	-	185.56	3478.95	-
JUNE	13,959.86	4,914.71	700.09	-	1457.72	1793.46	664.61	403.41	421.47	393.31	62.10
JULY	4,153.60	4,303.45	1256.57	101.05	3270.13	68.31	565.63	106.47	722.21	12413.59	50.76
AUG	15,201.77	5,091.18	1362.18	131.72	1590.31	1793.46	370.38	-	332.58	5474.67	55.35
SEPT	16,170.52	8,486.92	361.29	14.39	1615.68	-	556.45	73.97	417.21	4520.31	114.30
OCT	13,525.92	4,760.78	-	28.51	2092.07	2080.75	567.09	35.27	1017.65	2930.85	72.95
NOV	22,713.33	6,805.94	-	-	2429.24	1827.00	501.84	547.46	2467.81	6041.32	51.10
DEC	18,253.94	6,034.79	-	13.29	2486.16	2150.14	623.58	174.85	402.79	6255.88	52.46
TOTAL	187,867.51	67,231.46	5845.43	428.27	13700.86	16961.66	5566.10	1776.65	6705.62	62305.56	742.90

* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$43,634.70

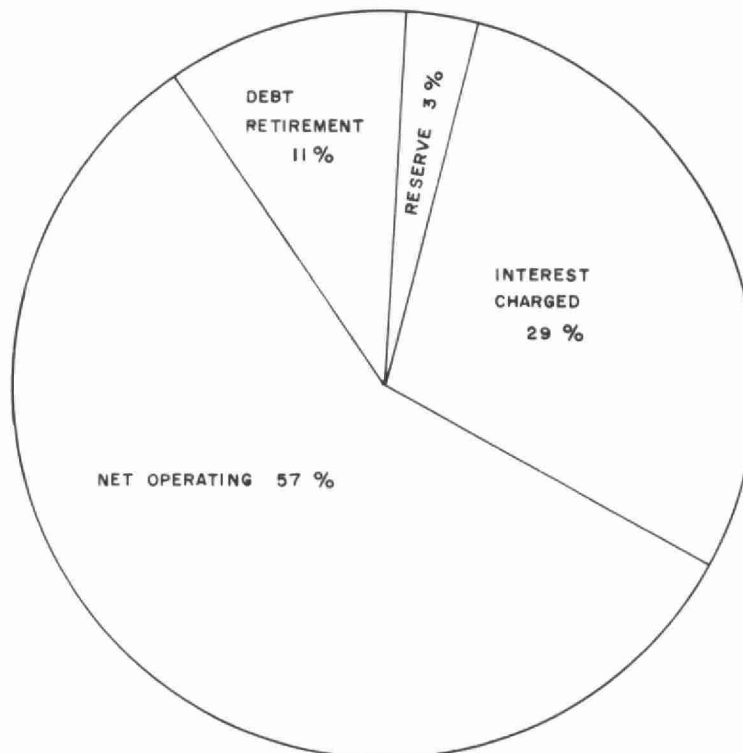
YEARLY OPERATING COSTS

YEAR	M.G. TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1962	740,900	\$ 73993.00	\$99.87	7 CENTS
1963	1209,400	\$118027.00	\$98.00	5 CENTS
1964	2358,700	\$159678.00	\$67.69	3 CENTS
1965	2623,254	\$140366.45	\$53.51	2 CENTS
1966	2307,316	\$156970.50	\$53.99	3 CENTS
1967	3595,113	\$187657.51	\$52.26	3 CENTS

1967 OPERATING COST



TOTAL ANNUAL COST



Process Data

FLOWS

The flow from Metropolitan Toronto was 2295.71 mg, an increase of 25.3% over 1966. The flow from the Township of Toronto (now the Town of Mississauga) was 1114.54 mg, an increase of 21.4% over 1966. The flow from the Town of Port Credit was 184.87 mg, an increase of 17% over 1966.

The total plant flow was 3595.11 mg, an increase of 23.5% over 1966.

PROBABILITY OF FLOWS

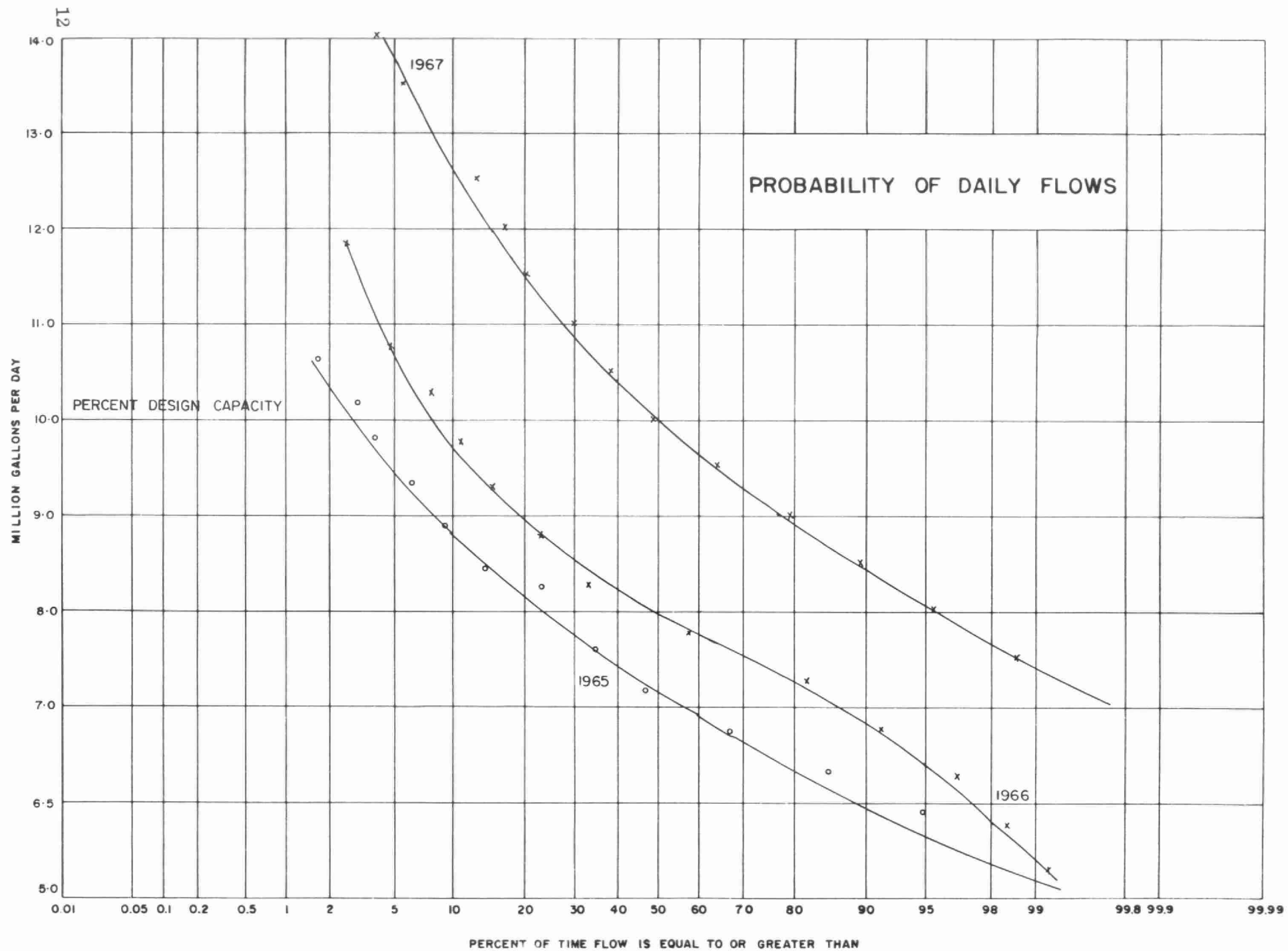
The plot demonstrates that 50% of the time the flow was 10.0 mgd or more and that 10% of the time the flow was more than 12.5 mgd. Until mid-year the plant capacity was 5.0 mgd. By mid October 1967 the rated capacity of the plant was 10.0 mgd.

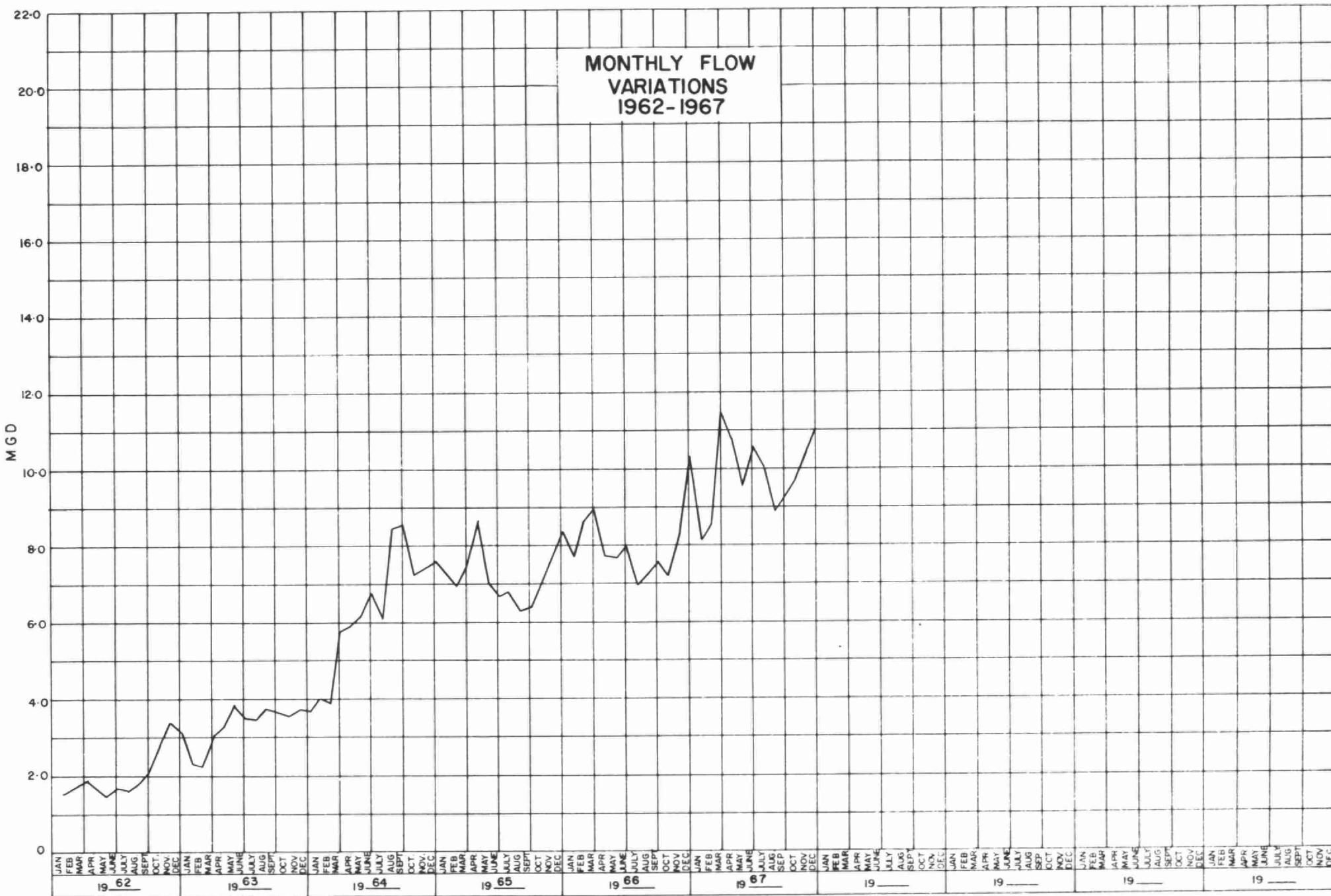
OPERATING RESULTS

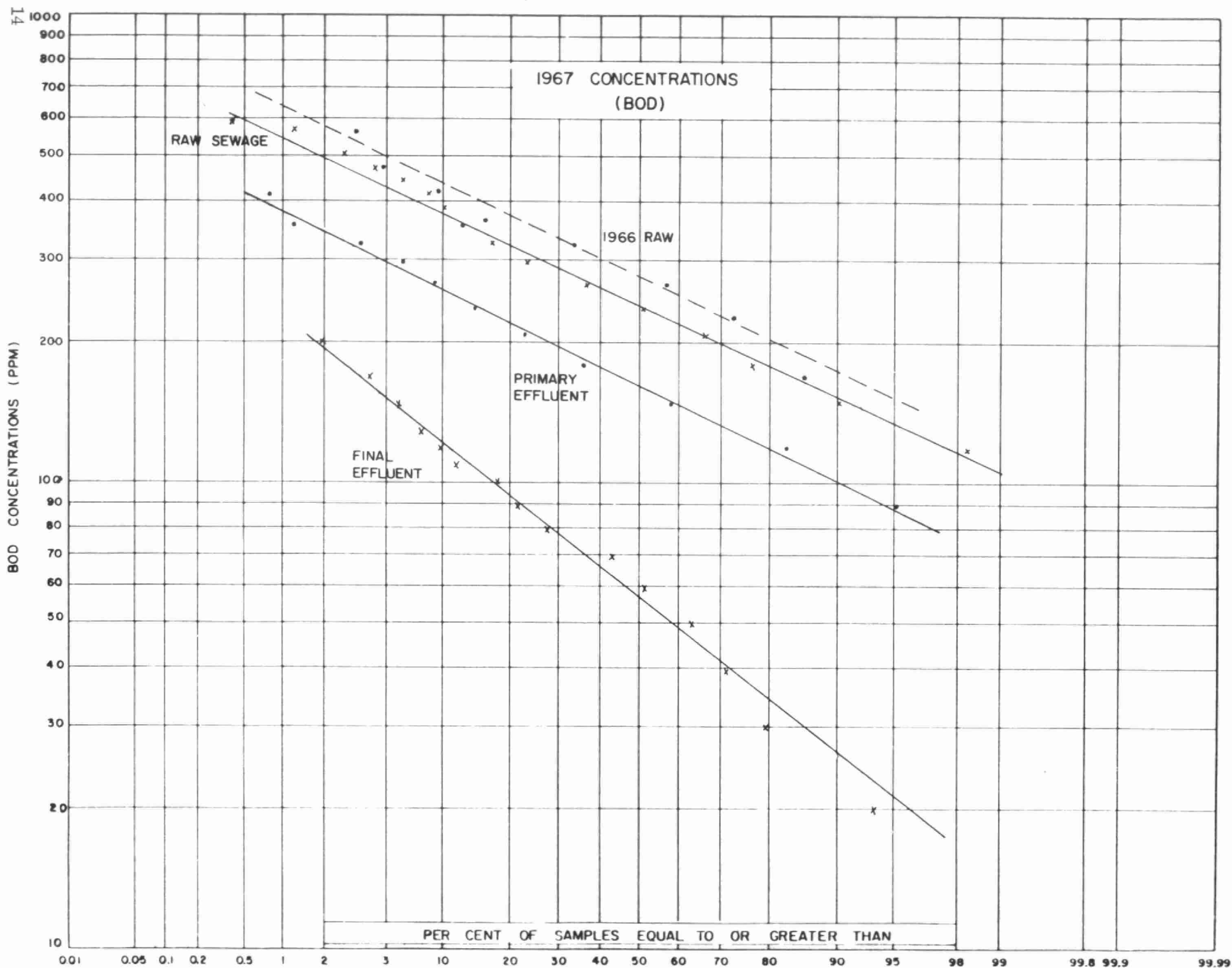
The Commission objectives of 15 ppm BOD and SS were greatly exceeded in the early part of the year and only slightly exceeded towards the year end.

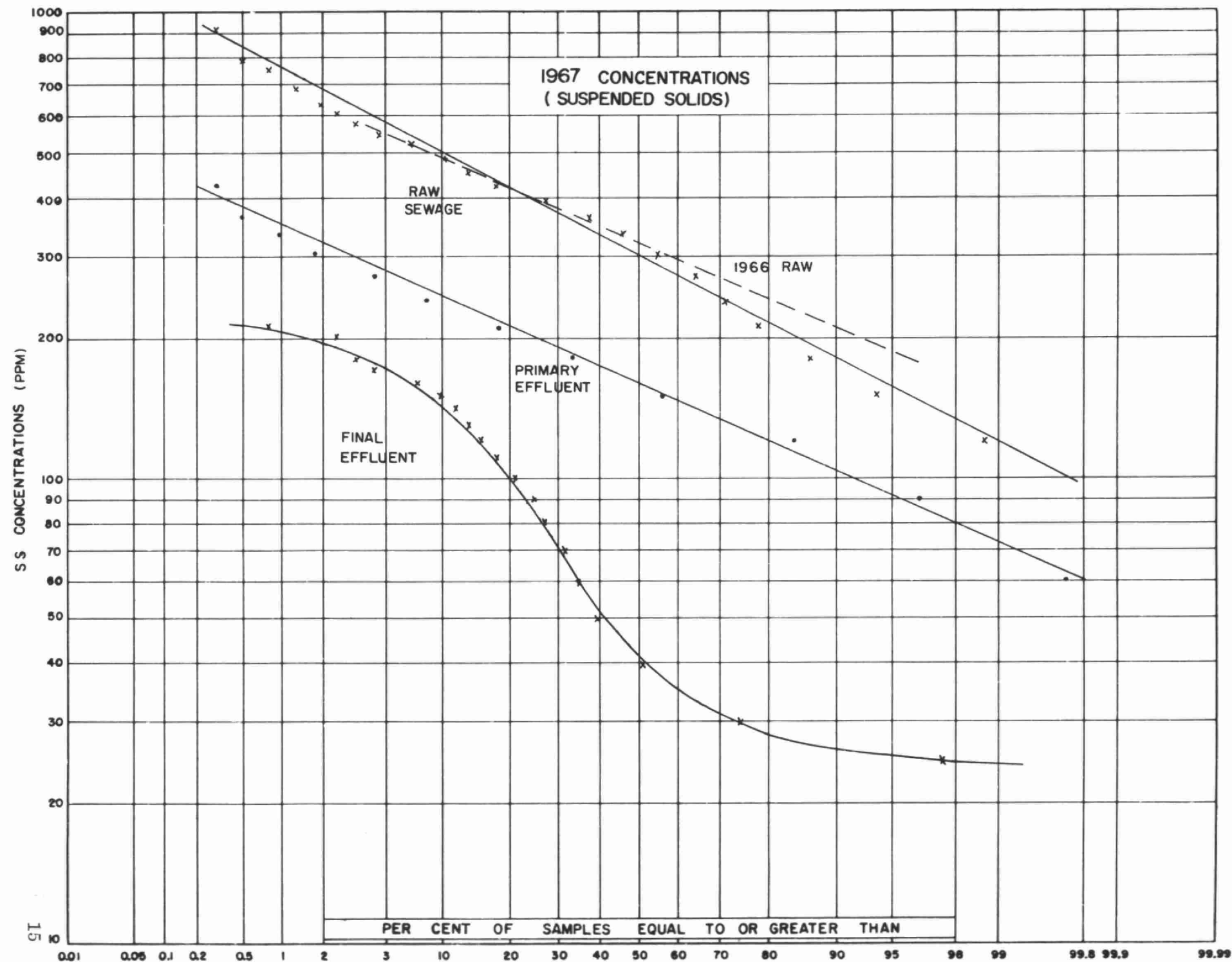
FLOW DATA

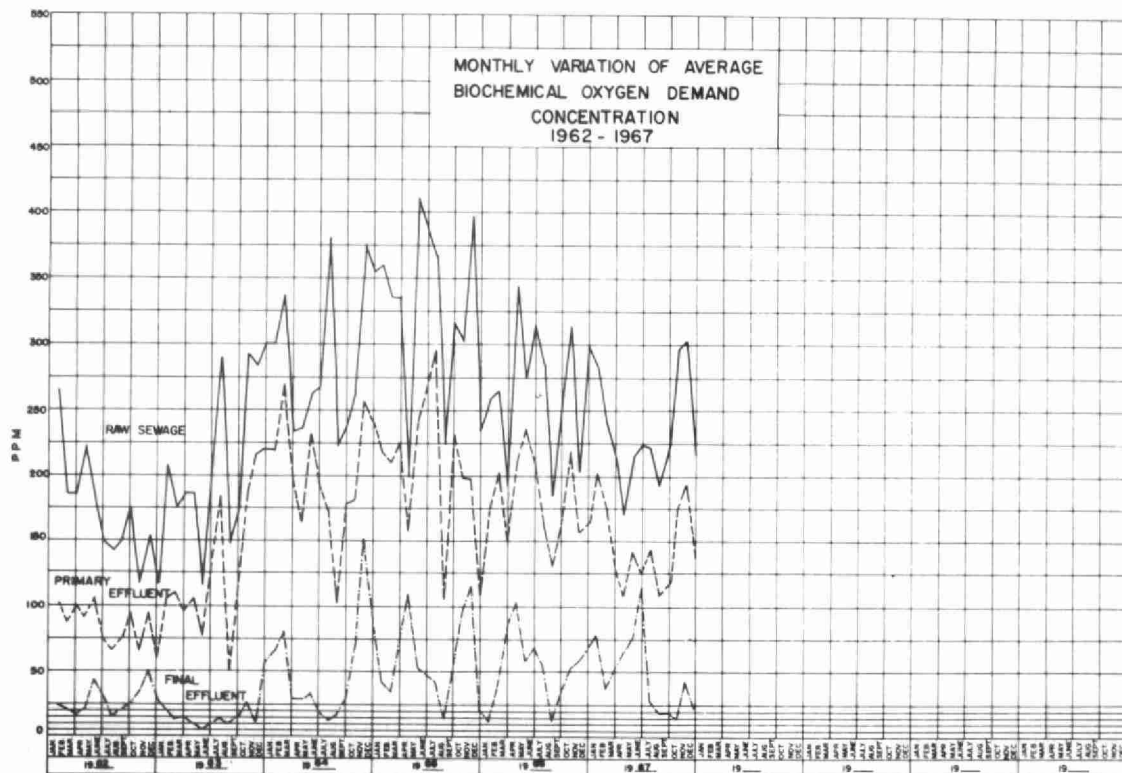
MONTH	METROPOLITAN TORONTO MG	TORONTO TOWNSHIP MG	PORT CREDIT MG	TOTAL PLANT MG
JANUARY	158.120	77.973	14.373	250.466
FEBRUARY	152.029	72.418	13.839	238.286
MARCH	223.885	111.422	19.670	354.977
APRIL	203.330	97.216	20.725	321.271
MAY	186.636	88.512	16.640	291.788
JUNE	199.978	97.489	18.807	316.274
JULY	197.347	97.133	16.897	311.377
AUGUST	179.347	78.273	13.085	270.705
SEPTEMBER	180.824	88.286	11.138	280.248
OCTOBER	193.302	99.275	13.537	306.114
NOVEMBER	202.169	97.007	12.548	311.724
DECEMBER	218.741	109.532	13.610	341.883
TOTAL	2295.708	1114.536	184.869	3595.113
PERCENT	63.90	31.00	5.10	100.00



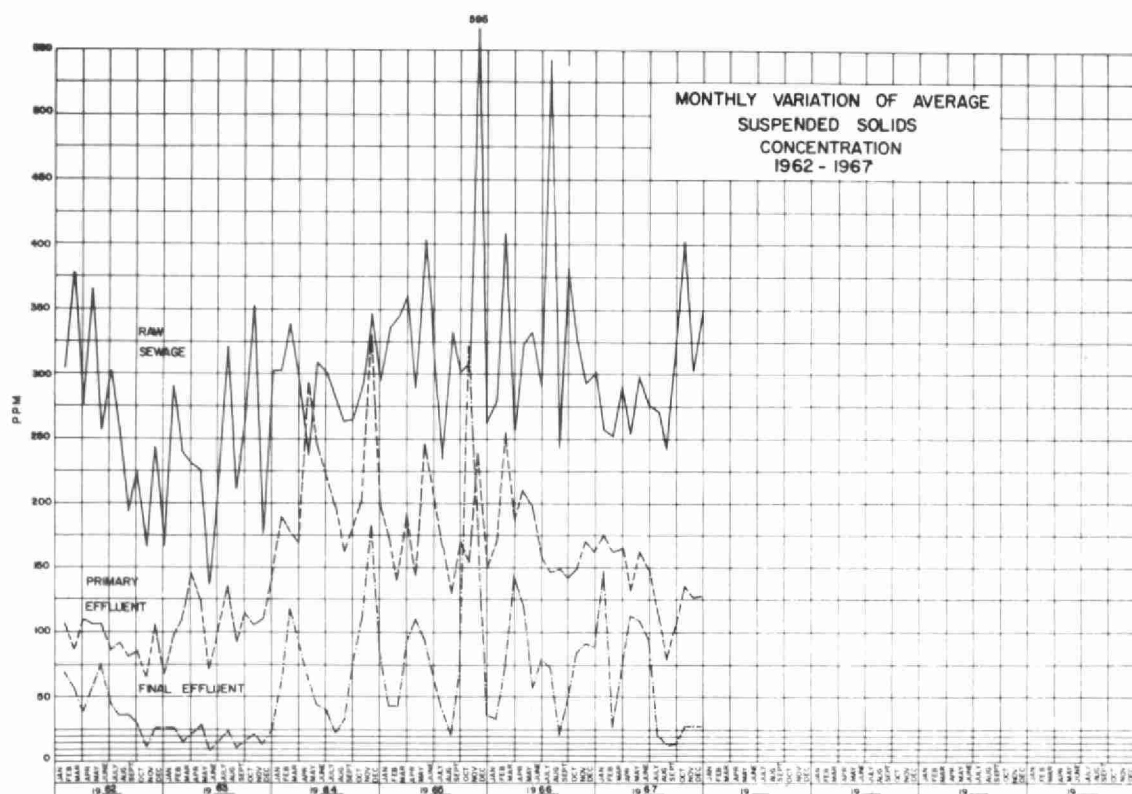








MONTHLY VARIATIONS



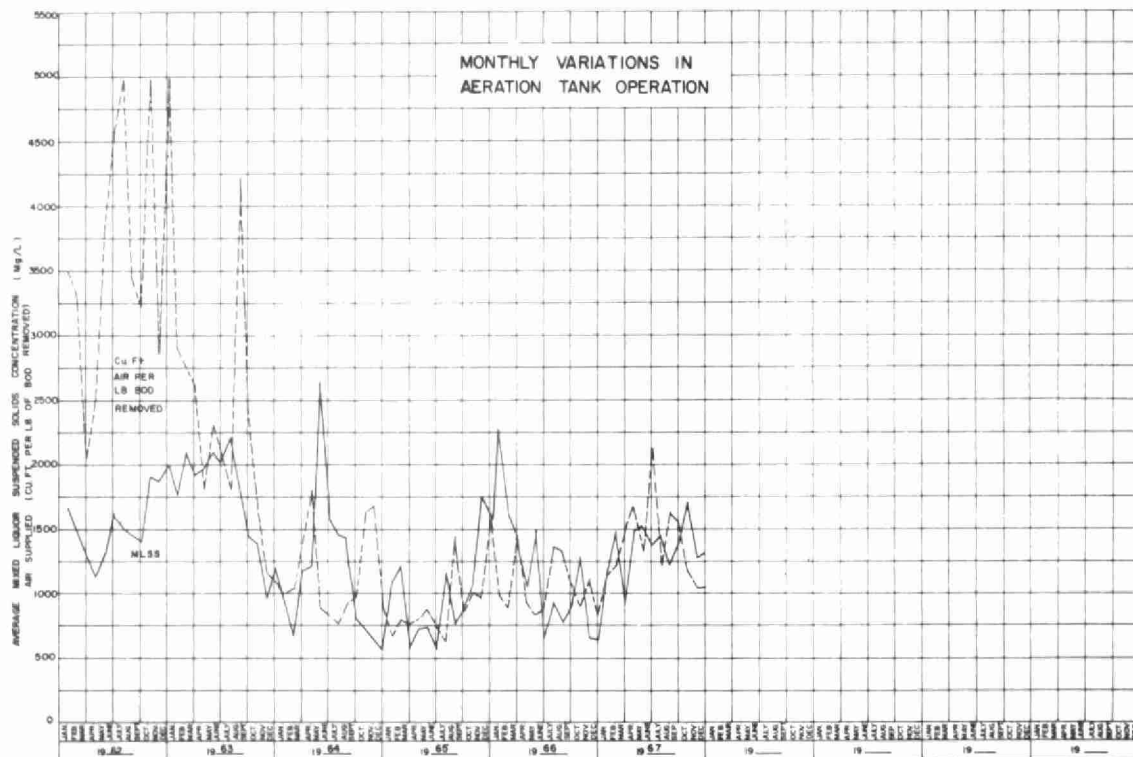
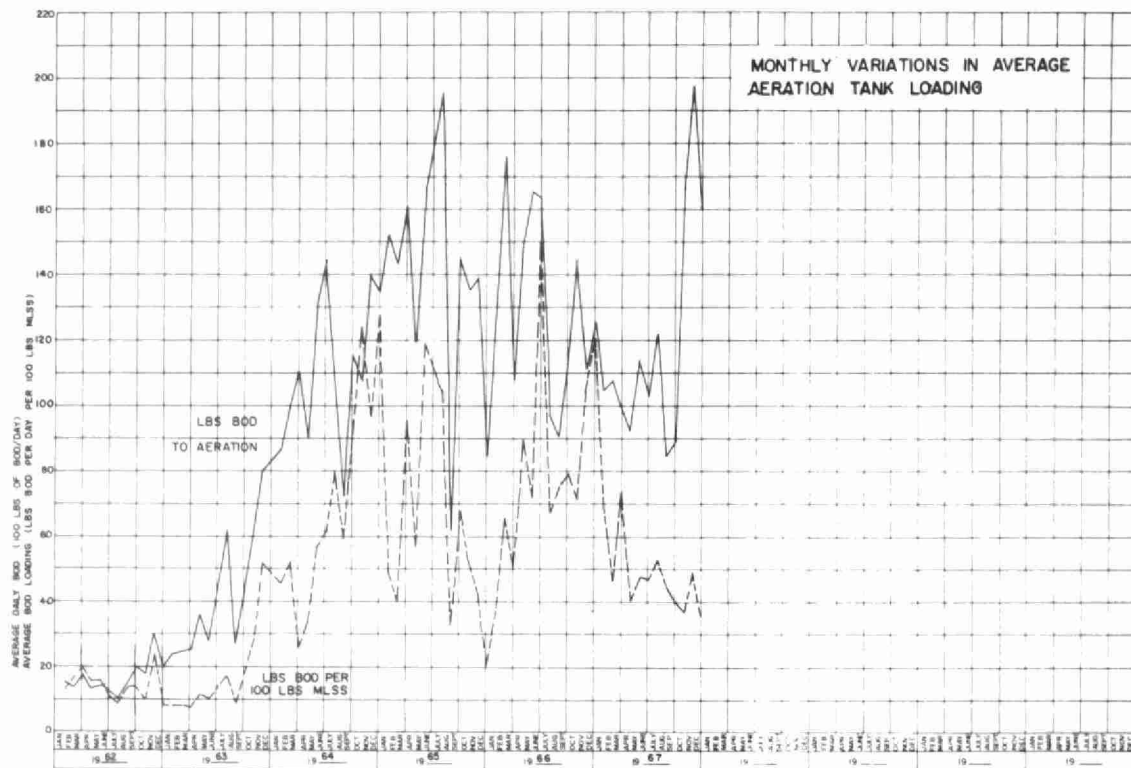
GRIT, B.O.D AND S. S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	283	77	72.7	258.0	256	146	42.9	137.8	125
FEB.	244	36	85.2	247.8	251	26	89.7	268.1	190
MAR.	214	*46	78.5	298.1	289	*56	80.6	413.5	355
APR.	170	64	62.5	169.7	254	111	56.0	229.0	290
MAY	215	74	65.5	205.7	297	109	63.0	274.3	545
JUNE	223	113	49.5	174.0	276	94	66.0	287.8	335
JULY	221	29	87.0	298.9	270	20	92.6	389.2	320
AUG.	191	19	90.0	232.8	241	13	94.5	308.6	70
SEPT.	218	18	91.5	280.2	315	14	95.5	421.8	160
OCT.	295	14	95.3	430.1	400	26	93.5	557.4	310
NOV.	303	41	86.5	408.4	302	27	91.1	428.6	250
DEC.	210	21	90.0	323.1	347	27	92.2	547.0	300
TOTAL	-	-	-	3343.4	-	-	-	4242.2	3250
AVG.	232	46	80.2	278.6	292	56	80.8	353.5	271

* Average value substituted. No sample.

COMMENTS

Other than plant overload, until July 1967 there were no major operating problems. As portions of the enlargement were put into operation, the quality of the effluent improved.



AERATION SECTION

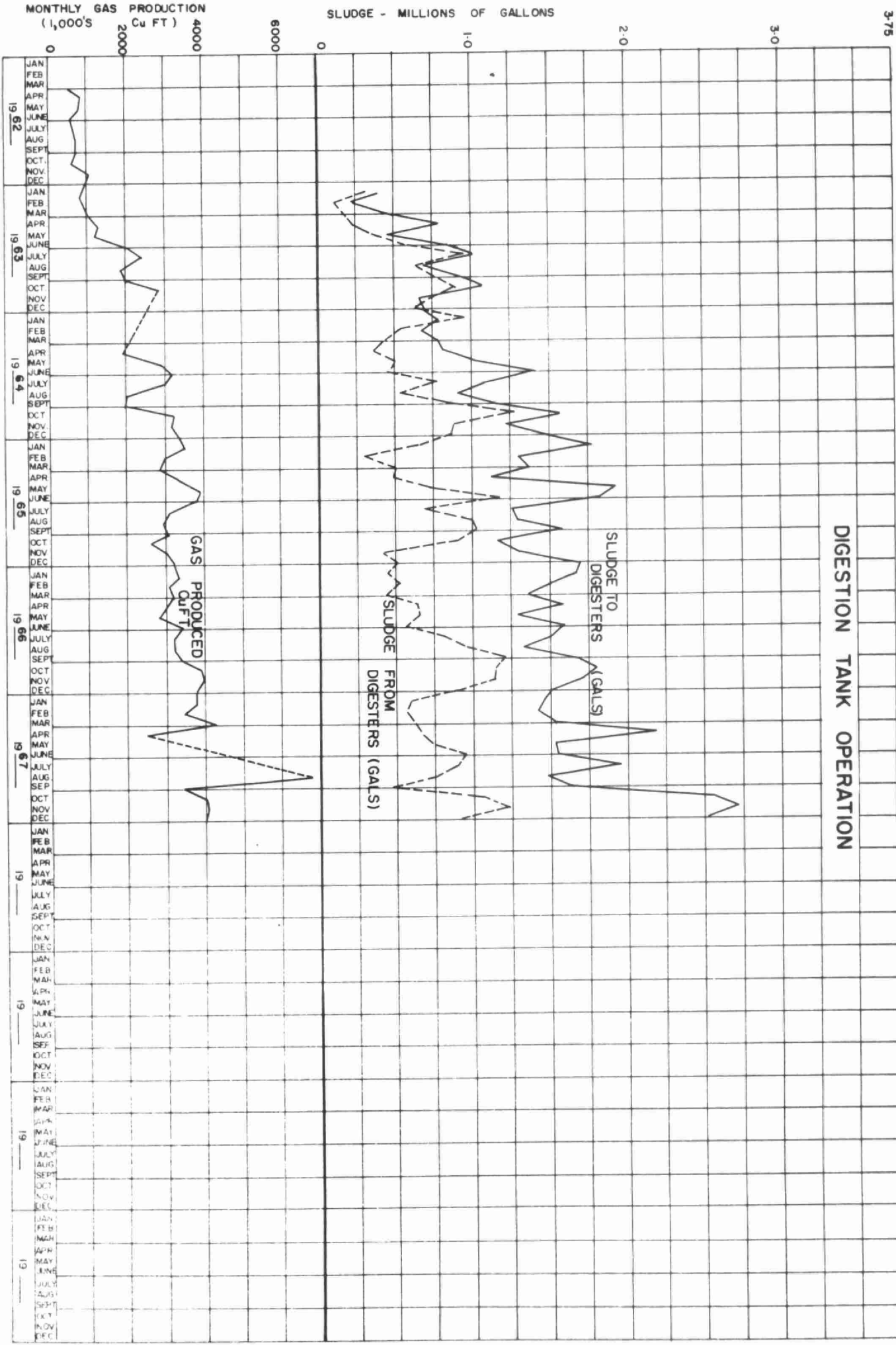
MONTH	PRIM. EFFL B.O.D. PPM.	MLSS. PPM.	LBS. BOD. PER 100 LBS. M. L. S. S.	CUBIC FEET AIR PER LB. BOD. REMOVED
JANUARY	201	1110	69	1103
FEBRUARY	175	1492	46	1225
MARCH	130	900	74	1494
APRIL	109	1470	40	1653
MAY	142	1545	48	1333
JUNE	125	1387	47	2130
JULY	143	1465	53	1204
AUGUST	107	1208	45	1639
SEPTEMBER	116	1431	40	1549
OCTOBER	173	1810	37	1176
NOVEMBER	191	1286	49	1046
DECEMBER	137	1320	36	1047
TOTAL	-	-	-	-
AVERAGE	146	1360	49	1383

COMMENTS

The ratio of lbs. of BOD per 100 lbs. MLSS is 49.

This value is high and is indicative of high loading being experienced, even with additional plant capacity in the latter part of the year.

DIGESTION TANK OPERATION



DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS			GAS PRODUCED 1000'S Cu Ft
	GALLONS	% SOLIDS	% VOL MAT	GALLONS	% SOLIDS	% VOL MAT	
JAN	1458728	5.21	65.3	592691	4.65	47.3	3754.0
FEB	1405178	5.23	65.0	560535	4.54	43.2	3410.6
MAR	1533386	5.91	59.6	623213	5.39	54.4	4208.6
APR	1435594	5.24	61.1	661144	5.14	45.5	2328.5
MAY	1549225	5.94	59.9	737236	6.58	47.3	**
JUNE	1550328	5.82	57.0	939563	6.46	46.1	**
JULY	1977779	5.49	53.9	883910	5.82	44.0	**
AUG.	1463355	6.43	58.9	751535	6.85	46.0	6735.9
SEPT.	1696898	6.30	61.0	462236	8.44	45.0	3338.9
OCT.	2529374	5.15	62.0	1026942	7.39	46.0	3982.4
NOV.	2718015	4.51	61.0	1229638	6.38	45.0	3997.4
DEC.	2509152	4.32	63.0	864716	6.39	45.1	3990.8
TOTAL	21827012	-	-	9333359	-	-	* 47662.8
AVG.	1818918	5.46	60.6	777780	6.17	46.2	3971.9

* Total prorated on 9 months' data.

** Meter out of service.

COMMENTS

There was a 60% reduction in volume from input to the amount removed by tank truck. The high reduction was due to the use of lagoons, and the filling of newly constructed digesters.

The average volatile solids reduction was 36.8%, and the average gas production was 10.4 cu. ft. of gas per pound of volatile solids removed.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	250,466	17320	6.92
FEBRUARY	238,286	18140	7.61
MARCH	354,977	25620	7.22
APRIL	321,271	23060	7.18
MAY	291,788	17910	6.14
JUNE	316,274	18730	5.92
JULY	311,377	16740	5.38
AUGUST	270,705	14220	5.25
SEPTEMBER	280,248	14060	5.02
OCTOBER	306,114	15900	5.19
NOVEMBER	311,724	13220	4.24
DECEMBER	341,883	11520	3.37
TOTAL	3595.113	206440	-
AVERAGE	299.593	17203	5.74

COMMENTS

The plant effluent is chlorinated 365 days per year. In 1967, 3,595.113 mg of effluent were dosed by 206,440 lbs. of chlorine at an average dosage of 5.74 ppm.

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CONCLUSIONS

Flows in 1967 increased by 23.5% over 1966. Plant capacity was doubled. By December 1967 the plant capacity was being fully utilized.

RECOMMENDATIONS

Further plant enlargement is required immediately.

Date Due

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Ontario Water Resources Co
Lakeview water
pollution control atkc

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